

## Bone marrow reticulin in patients with immune thrombocytopenic purpura

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<b>Origin of Study</b>	USA, United Kingdom
<b>Type of Study</b>	RETROSPECTIVE SURVEY
<b>Objectives</b>	Determine whether reactive megakaryocyte proliferations in immune thrombocytopenic purpura (ITP) are associated with increased reticulin deposits.
<b>Study Design</b>	<p>Forty patients with ITP were identified from clinical records in a retrospective survey of bone marrow biopsy material.</p> <p>Paraffin-embedded sections from bone marrow biopsy specimens were stained for reticulin using standard silver-impregnation methods.</p> <p>Reticulin was quantified using the Bauermeister scale: 0, no demonstrable reticulin fibers; 1, occasional fine individual fibers and foci of a fine-fiber network; 2, fine fiber network throughout most of the section, but no coarse fibers; 3, diffuse fiber network with scattered thick coarse fibers, but no mature collagen; and 4, diffuse, often coarse fiber network with areas of collagen.</p> <p>Bone marrow cellularity and megakaryocyte numbers also were evaluated.</p>
<b>Patients</b>	Patients were diagnosed with ITP and underwent a bone marrow biopsy with available tissue blocks and a complete blood count at the time of biopsy.
<b>Observations</b>	In all, 13 of the 40 patients (33%) had absent (grade 0) bone marrow reticulin, 1 (2%) had grade 0–1 bone marrow reticulin, 20 (50%) had grade 1 bone marrow reticulin, 5 (13%) had grade 1–2 bone marrow reticulin, and 1 (2%) had grade 2 bone marrow reticulin.
<b>Conclusions</b>	Reticulin was present in the bone marrow of about two-thirds of patients, with 15% having greater than grade 1 bone marrow reticulin.
<b>Discussion</b>	<p>ITP is an uncommon condition characterized by the production of autoantibodies that target platelets, leading to their accelerated destruction. Although the bone marrow stroma has not been well characterized in ITP, it often contains elevated numbers of megakaryocytes, cells that have been associated with reticulin formation in other conditions.</p> <p>Reticulin is an argyrophilic protein normally found to be absent or present at low levels in bone marrow. Elevated reticulin levels (reticulin fibrosis) could potentially be useful in assessing the presence of ITP and better understanding its pathophysiology. The primary aim of this study was to quantitate the amount of reticulin in the bone marrow of patients with ITP.</p> <p>In the study of 40 patients retrospectively identified by chart review, paraffin-embedded bone marrow biopsy specimens were stained by silver impregnation methods to identify reticulin. The quantity of reticulin was graded using the Bauermeister scale, with values ranging from 0 (absent) to 4 (diffuse often coarse fiber network with areas of collagen).</p>

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“Reticulin was present in the bone marrow of approximately two-thirds of patients, with 15% having greater than grade 1,” the investigators wrote. For comparison, they note that a study among hematologically healthy individuals showed that the Bauermeister grade was 1 in 27% and 2 in 4% (*Beckman et al. Arch Pathol Lab Med 1990;114:1241–1243*).

“Analysis is ongoing to further characterize the deposition of reticulin in the bone marrow of patients with ITP, the relationship of reticulin deposition to megakaryocyte numbers and location, and correlations with patient clinical findings,” they conclude.

**Key Points**

- Most ITP patients had the presence of  $\geq$  grade 1 reticulin present in their bone marrow at baseline.
- Further analysis is ongoing to characterize reticulin deposition in the bone marrow of ITP patients and the relationship of this deposition to megakaryocyte numbers and location and to correlate this information with patient clinical findings.

**Reference**

Mufti G, Bagg A, Hasserjian R, et al. Bone marrow reticulin in patients with immune thrombocytopenic purpura. Presented at the 48<sup>th</sup> Annual Meeting of the American Society of Hematology; December 9–12, 2006; Orlando, Florida. Abstract 3982.